

WHAT IS CLAIMED IS:

1. A stackable winding core, comprising:
  - a male end;
  - an opposite female end;
  - 5 a main portion extending between and joined to the male and female ends, the main portion comprising a paperboard tube, the main portion having a cylindrical inner surface and a cylindrical outer surface each of constant diameter over substantially an entire length of the main portion;
  - the female end having an inside diameter greater than the diameter of the
  - 10 cylindrical inner surface of the main portion;
  - the male end having an outside diameter less than the inside diameter of the female end such that the male end of the core is insertable into the female end of another said core; and
  - the core nowhere having an inside diameter less than the diameter of the
  - 15 cylindrical inner surface of the main portion.
2. The stackable winding core of claim 1, wherein the male and female ends comprise paperboard tubes formed integrally with the main portion.
3. The stackable winding core of claim 2, wherein opposite ends of the paperboard tube that forms the main portion are machined respectively at inner and outer
- 20 surfaces of said paperboard tube so as to form the male and female ends, such that the main portion and the male and female ends comprise integral parts of said paperboard tube.
4. The stackable winding core of claim 2, wherein the core comprises an inner paperboard tube coaxially disposed within an outer paperboard tube and axially offset
- 25 with respect to the outer paperboard tube such that one end of the inner paperboard tube forms the male end of the core and an opposite end of the outer paperboard tube forms the female end of the core.

5. The stackable winding core of claim 1, further comprising:  
a first stacking surface defined by one of the male and female ends, and a second stacking surface defined by the main portion at a first end of the main portion opposite from said one of the male and female ends, the first and second stacking surfaces being  
5 nonparallel to a longitudinal axis of the core and structured and arranged such that the first and second stacking surfaces abut each other when the male end of the core is inserted in the female end of another said core.

6. The stackable winding core of claim 5, wherein the first stacking surface comprises an end surface of the male end and the second stacking surface is formed by a  
10 step between the inside diameter of the female end and the cylindrical inner surface of the main portion.

7. The stackable winding core of claim 5, wherein the first stacking surface comprises an end surface of the female end and the second stacking surface is formed by a step between the outside diameter of the male end and the cylindrical outer surface of  
15 the main portion.

8. The stackable winding core of claim 5, further comprising a third stacking surface formed by an end surface of the female end and a fourth stacking surface formed by a step between the outside diameter of the male end and the cylindrical outer surface of the main portion, the third and fourth stacking surfaces being structured and arranged  
20 to abut each other when the male end is inserted into the female end of another said core.

9. A method for making a stackable winding core, the method comprising the steps of:

forming a paperboard tube, the paperboard tube having a cylindrical inner surface and a cylindrical outer surface each of constant diameter along a length of the paperboard  
25 tube, the paperboard tube having a wall thickness defined between the cylindrical inner and outer surfaces;

machining the cylindrical inner surface of the paperboard tube at one end of the paperboard tube so as to reduce the wall thickness over a lengthwise first end portion of

the paperboard tube, such that the first end portion has an inside diameter greater than the diameter of the cylindrical inner surface of the paperboard tube; and

machining the cylindrical outer surface of the paperboard tube at an opposite end of the paperboard tube so as to reduce the wall thickness over a lengthwise second end portion of the paperboard tube, such that the second end portion has an outside diameter less than the inside diameter of the first end portion.

10. The method of claim 9, wherein the machining steps reduce the wall thickness by approximately 50 percent at each of the first and second end portions.

11. A method for making stackable winding cores, the method comprising the steps of:

spirally winding a plurality of inner plies one atop another about a cylindrical mandrel and adhering the inner plies to one another to form an inner tube on the mandrel;

spirally winding a plurality of outer plies one atop another about the inner tube on the mandrel and adhering the outer plies to one another to form an outer tube

concentrically surrounding the inner tube, the inner and outer tubes comprising a tube assembly, an interface between a radially outer surface of the inner tube and a radially inner surface of the outer tube being free of adhesive such that the inner tube is axially slidable relative to the outer tube;

removing the tube assembly from the mandrel and cutting the tube assembly into lengths corresponding to cores to be produced; and

for each length of tube assembly, axially sliding the inner tube relative to the outer tube a distance substantially less than the length of the tube assembly and affixing the inner and outer tubes together to prevent further axial sliding, whereby a protruding end portion of the inner tube forms a male end and an opposite end portion of the outer tube forms a female end, and the male end of one core is insertable into the female end of another core for stacking the cores end-to-end.

12. A method for making a stackable winding core, the method comprising the steps of:

providing a first tube having an outer surface defining an outside diameter;

providing a second tube having an inner surface defining an inside diameter greater than the outside diameter of the first tube, the first and second tubes being of approximately equal lengths;

5 disposing the first tube coaxially inside the second tube with the outer surface of the first tube contacting the inner surface of the second tube;

axially offsetting the first tube relative to the second tube such that a first end of the first tube protrudes out beyond a first end of the second tube and an opposite second end of the second tube extends out beyond an opposite second end of the first tube, whereby the first end of the first tube forms a male end and the second end of the second tube forms a female end; and

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affixing the first and second tubes to each other to prevent axial sliding therebetween.